DOCUMENT RESUME

ED 238 133 EA 016 227

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TITLE Knowledge Use Capacity in the Public Schools.
PUB DATE [Apr 83]
NOTE 13p.; Paper presented at the Annual Meeting of the American Educational Research Association (Montreal, Quebec, Canada, April 11-15, 1983).
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Curriculum; *Decision Making; Early Childhood Education; Educational Administration; *Educational Change; Educational Development; *Educational Innovation; Educational Resources; Linking Agents; Models; Program Development; Public Agencies; School Policy
IDENTIFIERS Kentucky; Virginia

ABSTRACT

This study examined the characteristics of school systems and programs that have been successfully involved in change over the past 10 years and that are continuing to update services through external sources. Four models of innovation are outlined: the traditional research-development and utilization (RDU) model, the Linkage Model (Havelock 1969), "Happenstance," and a fourth proposed model, "Knowledge Use Capacity." Preliminary information shows none of the seven sites studied has a formal policy toward change. Who does the planning and decision-making varies from school to school. Knowledge-use profiles of the seven sites also vary, with most having a problem-solving focus. The findings appear to show several important dimensions underlying change: (1) the extent to which the organization is intentionally seeking to improve; (2) the capacity of the organization to initiate activities and make decisions; (3) the ability of the organization to acquire resources supporting change; and (4) staff cohesion and motivation. All these factors are important in allowing change to become practice. The researchers are encouraged to believe that the concept of "Knowledge Use Capacity" is useful in understanding innovation and change. (MD)

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April 1983
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KNOWLEDGE USE CAPACITY IN THE PUBLIC SCHOOLS

BY

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Much has been made of public schools' resistance to change and failure to adopt innovations or to maintain them over time. However, a recent review article by Feller (1983) focuses our attention on successful adoptions. He states:

> Recent studies of innovation suggest that rates of adoption of new technologies are more rapid and extensive than frequently stated, and that resistance to change often reflects an organization's considered judgment that a proferred innovation does not improve agency performance. He concludes... that more attention should be paid to improving the capacity of organizations to deal with problems and less to fostering the utilization of innovations (Roessner, 1979; Feller, 1980).

It is the purpose of this paper to examine characteristics of a number of public school systems and their programs that have been successfully involved in change and innovation over the last ten years and are continuing to update their services through use of external sources of information and support. Furthermore, it is the purpose of our research to determine factors which account for their levels of successful change. For the purpose of our study change is defined as the use of some new procedure, method, or strategy to accomplish programatic goals.

Perhaps the failure of some studies to find innovation in the schools has been as much a result of study methods as it has been lack of program change in the schools themselves. For example, a number of studies have focused on targeted changes in technology or curriculum such as use of New Math Curriculum, others on the use of specific delivery strategies e.g., technical

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assistance, linking agents, etc. These studies often focus on schools that have been mandated or persuaded to adopt specific changes and to accept external intervention in doing so. Success or failure of such efforts usually depends on the compatibility of the perceived and/or real needs of the schools, with the quality of the package being delivered and/or with the external delivery agent's knowledge or style. Successful adoption on such innovations might depend more on the delivery or deliverable than on the school's actual climate for change. On the other hand innovations which germinate within the school and use external and internal resources to support them are often overlooked in research on innovative change. While it is not known how prevalent such innovations are, they occur often enough to be worthy of study.

It is the purpose of our NIE funded research to study such school innovations and the schools themselves to identify the characteristics of these schools to determine internal forces which support and/or hinder program change and development and the use of external information in doing so.

To understand program change, we are examining the heuristic value of four different models of innovation. The first is the traditional research-development and utilization (RDU) model of change. Basically, this model specifies that there is a linear relationship describing the process of innovation and change. Simply stated, research discovers new methods. These methods are further developed in applied settings, and then these methods are delivered to service providers. Effective utilization of research findings in service delivery programs is in part the result of links or gaps between basic researchers, developers, and service deliverers. It is also the result of goodness of fit between research results and service delivery needs. Schools influenced by this method are at the end of a chain of events.

A second model, the Linkage Model (Havelock, 1969), emphasizes the role of linkage agents or linkers in providing information and technology from any number of sources to a service deliverer in need. The emphasis of this model is placed on the linker as a gap filler who serves as a conduit for feeding external information into a system with needs. The application and effectiveness of this model is dependent, at least in part, on the competencies of the linker, the knowledge the linker has of resources and needs of the system, as well as, the personal style and availability of the linker to a school system.

A third model of change, I'll call, Happenstance. This model suggests that serendipitous events may lead organizations to change. For example, it may be that a staff member comes into contact by chance with resources or information of use to the organization.

We propose a fourth model to account for variation in use of external resources to bring about change and program development. We suggest that school districts vary in their conscious attempts to utilize external resources and to engage in program development. The basis of these differences is the school's posture relative to encouraging or discouraging innovation and in utilizing techniques to support such innovations. We hypothesize that schools have varying degrees of ability to utilize external resources, an ability we are calling Knowledge Use Capacity. This is the capacity of a school or organization to identify and use resources to solve problems or promote further development of its programs or staff.

Our current study is designed to identify school characteristics which relate to use of external resources or support. We are examining characteristics which cluster around several different organizational factors: the school's policy toward innovation and change; administrative support for

change; use of systematic program planning methodology; involvement of staff in decision making; and use of incentives for staff to engage in program development.

Our study combines a case study approach with a survey methodology. We selected a total of 24 school systems in six different states. Each site was nominated by state education agency personnel as having an exemplary early childhood program and operates without the benefit of participating in a direct federal funding program. Early childhood programs were selected for study because they were not mandated by type or form. Since there is a wealth of information that is known about early childhood practices, it is possible to examine the exemplary nature of selected programs.

Each site was surveyed and/or visited to determine the extent to which its program was exemplary. Exemplary for the purpose of this study was defined as having a relatively complete program of services and organization. Program completeness was set as a standard to allow for variation in program style, philosophy, and methodology. Completeness was judged in five areas: child find, program planning, curriculum, parent involvement, and coordination with other community agencies. Although program variation was found, each program was judged to be adequately well developed to warrant the label exemplary. However, as we have learned more about these programs, differences between programs have become more salient. Because of research resource constraints, we have focused our recent efforts on sites in two states: Virginia and Kentucky. At present, our data base consists of data collected from two site visits to each site, two mail surveys, an average of five phone interviews per site, and information logs covering the time period September 1, 1982 to the present.

Before we share results with you, let me state that the purpose of this study is to operationally define a hypothetical construct named Knowledge Use

Capacity. Our goal is to assist school districts to assess their own capacity for change and perhaps to strengthen these capacities.

We mentioned earlier that we are examining various school characteristics which we think are related to a school's Knowledge Use Capacity. Our case studies are designed to elicit information about these characteristics, for example, (1) the school's formal or informal policy toward innovation and change, (2) the kind of support for change that is actually provided by the school district, (3) the type of planning and decision-making used, and (4) the use of incentives for staff and program development. These characteristics, and others like them have been shown to be related to a school's use of external information. For example, (1) schools which have policies and administration which support change provide healthy environments for innovation. Do they also encourage use of external information and knowledge? (2) Schools which have systematic planning processes have been found to be innovative. Do they also systematically utilize external sources of information? (3) Schools which provide environments for democratic decision making have been found to be users of innovations. Are they also supportive users of external knowledge? (4) Some schools also provide staff incentives for change? Do they in turn provide incentives for gathering external resources?

During the first year and a half of our study we surveyed each of the 24 sites by mail and phone and visited one half of them. We collected demographic information as well as other organization data. We interviewed key program staff and school administrators about the history of the program and its support within the school district. We searched for other examples of innovation at these sites and for school policies related to them. We

collected documents and reviewed materials to specify program activities in three areas. (1) school organizational and administrative supports for program components: child find, curriculum, parent involvement, coordination of services, and evaluation.

We are now collecting information about the relationship between the orgainizational characteristics and how the school uses knowledge by studying the process of change at seven sites. A particular kind of change in the preschool program at each site was identified through discussion between us and the program director. For example, the method of assessing children's needs was being changed at one site. A component for autistic children was planned at another. A new program for children with communication disorders was needed at a third site. The type of change at each site had to meet four criteria. First it required some time to carry out from six months to a year or more. Second, it involved negotiation and planning with the school administration. Third, it necessitated staff development of some type. Fourth, it required some type of long-range planning and decision-making.

Logs are maintained at each site to record information about knowledge use and events related to planned change. More detailed information about logged events are elicited from site personnel through phone contacts and site visits. Through this method we are obtaining information about how school districts act toward a specific program change.

Policy toward Change

We found that none of the seven sites studied has a formal policy toward change. However, the attitude toward change did vary from site to site. Four of the seven sites presented a fairly positive attitude toward change, while two of them indicated a high positive attitude and one presented a negative attitude.

Planning and Decision-making

More interesting differences begin to emerge with respect to planning and decision-making. An annual plan is produced at all sites. Most of these plans are program plans which indicate numbers of pupils, classrooms, and teachers, along with a program budget. The plans at some sites go beyond a basic program plan to include action-oriented strategic planning for program change. Two sites are especially notable in this regard. Who is involved in planning also varies among sites. The amount of teamwork involved in planning varies from site to site with three sites using a two person team, two sites using the entire staff, and two sites using only the program coordinator.

Decision-making styles vary accordingly with planning styles. If there is a team effort to develop the plan, most decisions at the site are made by the staff working as a team. If the plan is basically written by the Director of Special Education or jointly by the Director and the Preschool Program Coordinator, then these are the decision-makers. Sometimes input is elicited from program staff, but the decisions are made by the "management".

Incentives for Staff and Program Development

We do not have much information about incentives at the present time. Generally, no special incentives are provided. When asked about incentives, most interviewees were silent for a moment, and then said either they hadn't thought about it, or it was their expectation that professionals were self-motivated. During our next site visit we will be interviewing teachers and support staff in depth to assess their motivations toward change and development.

Knowledge Use

The Knowledge Use profiles of the seven sites are somewhat varied. Most have a problem-solving focus, but the method of problem-solving and involvement

of staff varies considerably. At one site, the Program Director meets weekly with all staff to assess needs of individual children and of the program in general. Needs are translated into resource requests -frequently taking the form of information coming into the program to specifically address the identified need. This is a highly intentional, highly focused approach to seeking and acquiring knowledge to promote program development. During a three month period, this site has had five different inputs from four different sources all of which were requested by site personnel. This same site is also very systematic in its approach to planning, using the team approach for action-oriented strategic planning (as beyond the annual program plan) and decision making. Another site, uses a similar approach, but instead of all pre-school teachers meeting with the program managers, a council of teachers is selected to do this (it is a much bigger program). The results are the same: a highly focused approach resulting in a carefully selected set of knowledge inputs to solve specific problems.

A third site, operates very much like the first two sites, but with an important difference. The Director and program staff are always scanning the "outside environment" for new ideas, concepts, and materials with which to improve their program. Staff at this site are intentional about solving specific problems, but they are also intentional about discovering some new idea that may benefit their program.

The way information enters other sites is quite different from those just mentioned. The process is much more informal and the team approach is not used. The Director or Coordinator informally assesses needs by checking with teachers on an individual basis about what they say they need and what he observes they need. Available resources are then assessed to determine what

the staff development program will be. No differences in quality necessarily are associated with differences in approach. In other words, just because a team approach isn't used, doesn't mean the knowledge inputs aren't just as useful.

The remaining sites tend not to be as systematic. They also tend to rely more on what is readily available in the market place than on assessment of needs. Group or team process is seldom used at these sites, whether for planning, decision-making or needs assessment related to knowledge inputs. In our preliminary attempts to fit data to construct, we may say that these sites may be exhibiting less Knowledge Use Capacity. Less because there is not as good a fit between needs and knowledge input requested. Less because there is not as good a reliance on a systematic, intentional process. But not necessarily less Knowledge Use Capacity because of lack of team process or team effort. Our present information suggests that both the "team process" and "strong leader" approach can result in knowledge use that seems quite adequate.

The number of information inputs or the number of sources per site does not seem to be related to the process by which information comes into the school system. The number of inputs range from 0 to 5, while the number of different sources ranges from 0 to 4, across all 7 sites, during a three month period.

One site, using a highly focused, highly intentional approach, has had 5 different inputs from 4 different sources. Another site, using the same approach has had no inputs during the first half of this year, while a site without a systematic, intentional approach has had 3 inputs from 3 different sources. It is possible that those using a highly systematic approach are much more careful "gatekeepers" than those who are less systematic. The number of

inputs and sources used by sites having a systematic, planful approach will depend on program needs. The number used by sites not using a systematic approach will probably depend on other factors, i.e., the initiative of linkers outside the system and happenstance.

These, then, are some preliminary thoughts about the concept of Knowledge Use Capacity and some accompanying data. Our findings and conclusions to date must remain as preliminary until we have completed our next round of site visits. Even then, without the use of control or contrast schools, our conclusion will have to remain suggestive. There appears to be several important dimensions underlying change. First is the extent to which the organization is intentionally seeking to improve, develop, and innovate. Second is the capacity of the organization to initiate planning activities and to make decisions with sufficient power to impact the organization. Third is the ability of the organization to acquire resources to support the change of efforts. And finally there should be enough staff cohesion and motivation to allow the changes to become a part of ongoing practice.

What does our data say about the different models of change? First only two of the sites appear to be influenced directly by the RDU model and that is for only a distinct part of their programs. At one site the use of prosthetic devices is directly influenced by medical research at a nearby university; at another understanding of education procedures for the treatment of autism is influenced by research and development activities at an associated regional university.

On the other hand, all of the programs studied are influenced by linkers. In Kentucky they are primarily state education office personnel or contracted consultants. In Virginia the linkers are staff members of regional technical assistance systems. Although the linkage agents have responsibility to provide

service on a demand basis, in most cases they are active in selling their wares. However, the schools respond differently. Only one of the sites appears to be primarily influenced by the offering attitude although each site receives some yearly assistance. The one site uses a regional TA system to set up and staff its staff development program.

To our knowledge only one of the sites seems to have been dramatically influenced by the Happenstance model. This was as a result of hiring a staff member who consequently brought in a whole new curriculum approach.

As a result of our analysis we are encouraged to believe that the concept of Knowledge Use Capacity can be useful to understand the process of innovation and change. School characteristics appear to make a difference on how and how much information enters, and is used by the school to develop its programs.

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